

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Original): A sensor comprising:
 - a dielectric block;
 - a thin film formed on a face of the dielectric block and in contact with a specimen;
 - a semiconductor laser unit as a light source which emits a light beam;
 - a first optical system which injects the light beam into the dielectric block so that the light beam is incident on a boundary between the dielectric block and the thin film at a plurality of incident angles which are greater than a critical angle for total reflection; and
 - a light detecting unit which detects a state of attenuated total reflection by measuring an intensity of the light beam totally reflected from the boundary;wherein said semiconductor laser unit is driven with a driving current on which a high frequency component is superimposed.
2. (Original): A sensor according to claim 1, wherein said semiconductor laser unit comprises a stabilization unit for stabilizing an oscillation wavelength.
3. (Original): A sensor according to claim 2, wherein said stabilization unit comprises,
 - a second optical system which feeds back to the semiconductor laser unit a portion of the

light beam emitted from the semiconductor laser unit, and

a wavelength selection unit which selects a wavelength of the portion of the light beam.

4. (Original): A sensor according to claim 3, wherein the frequency of the high-frequency component superimposed on said semiconductor laser is within the range of 200MHz-1000MHz.

5. (Original): A sensor comprising:

a dielectric block;

a metal film formed on a face of the dielectric block and in contact with a specimen;

a semiconductor laser unit as a light source which emits a light beam;

a first optical system which injects the light beam into the dielectric block so that the light beam is incident on a boundary between the dielectric block and the metal film at a plurality of incident angles which are greater than a critical angle for total reflection; and

a light detecting unit which detects a state of attenuated total reflection due to surface plasmon resonance by measuring an intensity of the light beam totally reflected from the boundary;

wherein said semiconductor laser unit is driven with a driving current on which a high frequency component is superimposed.

6. (Original): A sensor according to claim 5, wherein said semiconductor laser unit comprises a stabilization unit for stabilizing an oscillation wavelength.

7. (Original): A sensor according to claim 6, wherein said stabilization unit comprises,
a second optical system which feeds back to the semiconductor laser unit a portion of the
light beam emitted from the semiconductor laser unit, and
a wavelength selection unit which selects a wavelength of the portion of the light beam.
8. (Original): A sensor according to claim 7, wherein the frequency of the high-frequency
component superimposed on said semiconductor laser is within the range of 200MHz-1000MHz.
9. (Original): A sensor comprising:
a dielectric block;
a cladding layer formed on a face of the dielectric block;
an optical waveguide layer formed on the cladding layer and in contact with a specimen;
a semiconductor laser unit as a light source which emits a light beam;
a first optical system which injects the light beam into the dielectric block so that the light
beam is incident on a boundary between the dielectric block and the cladding layer at a plurality
of incident angles which are greater than a critical angle for total reflection; and
a light detecting unit which detects a state of attenuated total reflection due to excitation
of a propagation mode in the optical waveguide layer, by measuring an intensity of the light
beam totally reflected from the boundary;
wherein said semiconductor laser unit is driven with a driving current on which a high
frequency component is superimposed.

10. (Original): A sensor according to claim 9, wherein said semiconductor laser unit comprises a stabilization unit for stabilizing an oscillation wavelength.
11. (Original): A sensor according to claim 10, wherein said stabilization unit comprises,
a second optical system which feeds back to the semiconductor laser unit a portion of the light beam emitted from the semiconductor laser unit, and
a wavelength selection unit which selects a wavelength of the portion of the light beam.
12. (Original): A sensor according to claim 11, wherein the frequency of the high-frequency component superimposed on said semiconductor laser is within the range of 200MHz-1000MHz.
13. (New): A sensor according to claim 3, wherein said stabilization unit comprises a resonator disposed from an end of the semiconductor laser unit to a reflecting member.
14. (New): A sensor according to claim 13, wherein said resonator is an external resonator.
15. (New): A sensor according to claim 13, wherein said semiconductor laser unit is disposed at a fixed distance from the reflecting member.